

ECST1V1308

SMT current sense transformer



Product features

- EE8.3 SMT package (13 mm x 11 mm x 7.8 mm)
- Very low DC resistance
- Wide selection of turns ratios
- Sensed current – primary rated for 15 A
- Frequency range: 50 kHz to 1 MHz
- Moisture sensitivity level (MSL): 1

Applications

- Switching power supplies
- Feedback control
- Overload sensing
- Load drop/shut down detection

Environmental compliance and general specifications

- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

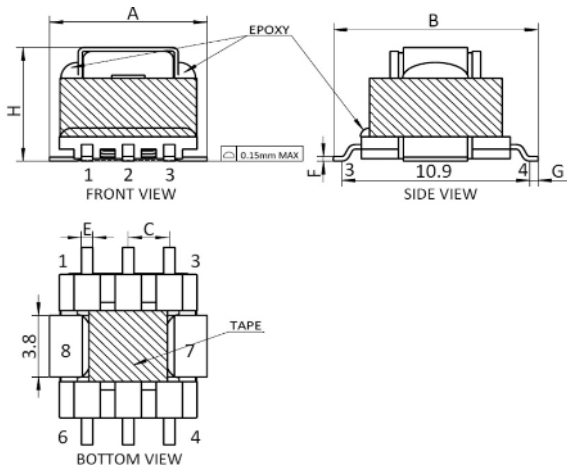


Product specifications

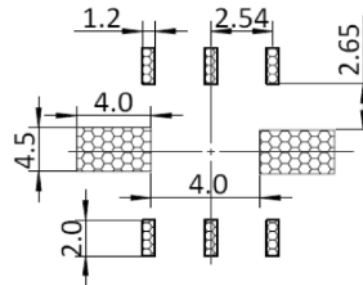
Part number ³	Turns ratio sec:pri	Secondary inductance (mH) @ 100 kHz 0.3 V minimum	DCR sec (Ω) maximum	DCR pri (m Ω) reference	Hi-pot pri to sec @ 3 mA 3 seconds 50 Hz	Sensed current ¹ (A) maximum
ECST1V1308-1020-R	20:1	0.22	0.21	3.9	500 Vac	15
ECST1V1308-1030-R	30:1	0.5	0.32	3.9	500 Vac	15
ECST1V1308-1040-R	40:1	0.88	0.5	3.9	500 Vac	15
ECST1V1308-1050-R	50:1	1.4	0.65	3.9	500 Vac	15
ECST1V1308-1060-R	60:1	2	0.81	3.9	500 Vac	15
ECST1V1308-1070-R	70:1	2.7	1	3.9	500 Vac	15
ECST1V1308-1080-R	80:1	3.5	1.3	3.9	500 Vac	15
ECST1V1308-1100-R	100:1	5.6	2	3.9	500 Vac	15
ECST1V1308-1125-R	125:1	8.7	5.2	3.9	500 Vac	15
ECST1V1308-1150-R	150:1	12.6	6.5	3.9	500 Vac	15
ECST1V1308-1200-R	200:1	22	8	3.9	500 Vac	15

1. Primary current of 15 A causes less than 40°C temperature rise @ +25°C ambient. Higher current causes a greater temperature rise
2. Electrical specifications at +25 °C
3. Part Number Definition: ECST1V1308-1xxx-R
ECST1V1308 = Product code and size
1xxx= Turns ratio sec:pri; 1=pri, xxx=sec; 1020= 20:1
-R suffix = RoHS compliant

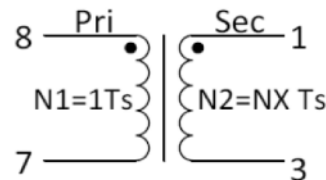
Mechanical parameters, schematic, pad layout (mm)



Recommended PCB Layout



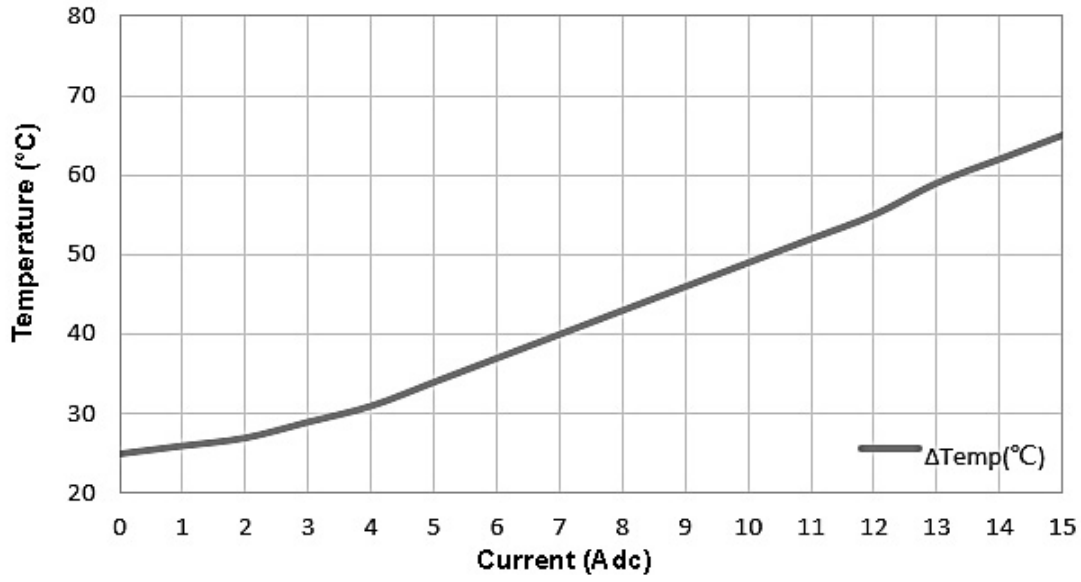
Schematic



Dimension	Value
A	11.00 maximum
B	13.00 maximum
C	7.80 maximum
E	0.7
F	0.25 ref
G	0.8 ±0.2
H	2.5 ±0.3

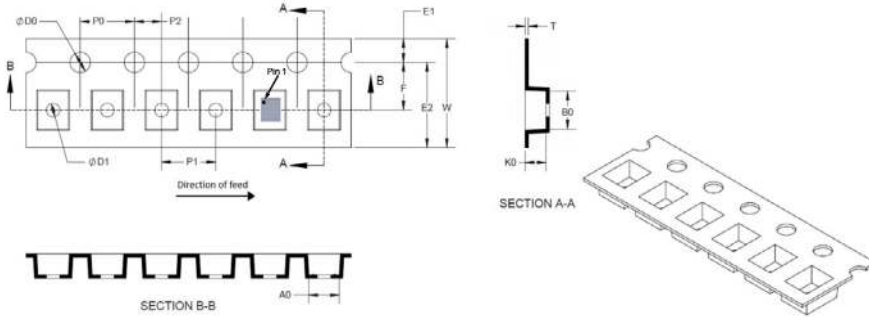
Part marking: White dot, Pin 1 indicator
All soldering surfaces to be coplanar within 0.15 millimeters
Tolerances are ±0.1 millimeters unless stated otherwise
Traces or vias underneath the inductor is not recommended

Temp rise vs current

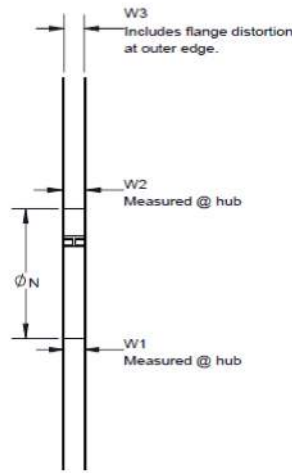
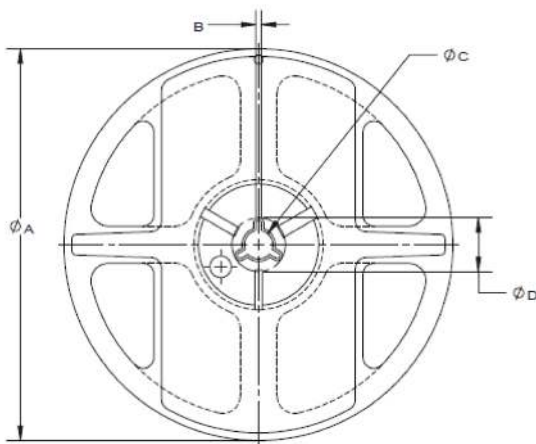


Packaging information (mm)

Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)
350 parts per reel



Dimension	Value
W	24.0 \pm 0.3
P1	20.0 \pm 0.1
E1	1.75 \pm 0.1
F	11.50 \pm 0.05
P2	2.0 \pm 0.05
D0	1.5 +0.1/-0
D1	1.5 +0.1/-0
B0	11.7 \pm 0.1
A0	13.3 \pm 0.1
K0	8.2 \pm 0.1
P0	4.0 \pm 0.1
T	0.40 \pm 0.05



Dimension	Value
A	330 \pm 3.0
N	100 \pm 1.0
C	13+0.5/-0.2
W1	24.4+2.0/-0.0

Solder reflow profile

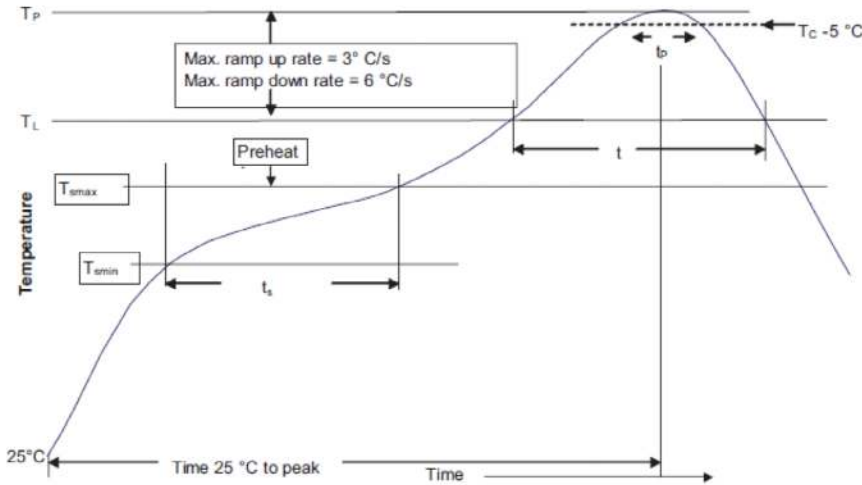


Table 1 - Standard SnPb solder (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm)	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_c)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T _{smin})	100 °C	150 °C
• Temperature max. (T _{smax})	150 °C	200 °C
• Time (T _{smin} to T _{smax}) (t _s)	60-120 seconds	60-120 seconds
Ramp up rate T _L to T _p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T _L)	183 °C	217 °C
Time (t _L) maintained above T _L	60-150 seconds	60-150 seconds
Peak package body temperature (T _p)*	Table 1	Table 2
Time (t _p)* within 5 °C of the specified classification temperature (T _c)	20 seconds*	30 seconds*
Ramp-down rate (T _p to T _L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Manual solder

30 W soldering iron. +350 °C ±10 °C, 3 seconds maximum. Do not touch product with iron. Generally manual, hand soldering is not recommended.

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